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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/691,088	10/18/2000	Akihiro Funakoshi	13782(JP919990178US1)	3754

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EXAMINER

AWAD, AMR A

ART UNIT	PAPER NUMBER
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2675

DATE MAILED: 07/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/691,088

Applicant(s)

FUNAKOSHI ET AL.

Examiner

Amr Awad

Art Unit

2675

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 12 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 12 May 2003 is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The references cited in the Information Disclosure Statement filed May 12, 2003 have been considered by the Examiner; see attached PTO-1449.

### ***Drawings***

2. The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on May 12, 2003 have been accepted. A proper drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The correction to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Endo (US patent NO. 5,852,430) in view of Sato (US patent NO. 5,956,006).

As to independent claim 1, Endo teaches a white point adjusting method for adjusting an achromatic color level to be displayed on a liquid crystal module for an input video signal including a plurality of color signals (figures 5 and 7 and col. 11, lines 36-50), comprising:

A first step of setting a white point by deciding an offset quantity of at least one color signal from a highest gray level for each color temperature (for that, Endo teaches applying effective voltages at a maximum of eight levels of the liquid crystal) (col. 9, lines 6-13 and col. 10, lines 15-29);

A second step of setting an offset quantity of the color signal in a direction of converging a halftone white point for each color temperature set in the first step (col. 9, lines 23-36).

Endo does not expressly teach a third step of adjusting chromaticity on a screen of the liquid crystal module by adding the offset quantity decided in the first step and the offset quantity set in the second step to the input video signal.

However, Sato teaches a liquid crystal display apparatus, wherein an offset value is added to the offset quantity of at least one of the color (col. 11, lines 3-57).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the teaching of Sato adding an offset quantity to the color signal to be applied to Endo's device so as motivated by Sato, to ensure fine adjusting of the display color (col. 2, lines 44-46). Such offset quantity will always assure fine adjusting regardless of the temperature of the display (if incorporated to Endo's display).

As to claim 2, Endo teaches that input video signal is composed of R, G and B color signals (col. 8, lines 12-17), the white point setting in the first step is executed by using a prescribed color temperature (below 40 degree C) as a default value, and luminance of the R and G color signals is reduced when a color temperature is set to a

high temperature side with respect to the prescribed color temperature (col. 8, lines 19-28 and col. 9, lines 6-21).

As to claim 3, Endo teaches that in eight-color display operation can be performed by applying effective voltages at a maximum of eight levels (col. 9, lines 6-23). This teaching fairly reads on the step of adjusting luminance of the entire input video signal after a white point is set in the first step.

As to claim 4, Sato teaches that offset quantity set in the second step is calculated with accuracy of bits larger in number than bits of the input video signal (col. 11, lines 19-33). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the teaching of Sato having the offset quantity of bits larger than the input bits, to be incorporated to Endo's device so as to ensure the accuracy of the color values, and therefore, having a display with better color quality.

As to independent claim 5, the limitations in claim 5 are substantially similar to the limitations of independent claim 1 and will be analyzed as previously discussed with respect to claim 1.

As to claim 6, Endo teaches a step of correcting deterioration of luminance in the display panel following the setting of a highest gray level achromatic color (for that, Endo teaches that in case of having high temperature (40 degree C or above) which cause deterioration in the colors of the display; the voltage designation signals corresponding to the image data different from the corresponding signals for low temperature (below 40 degrees C)) (col. 9, lines 6-23).

As to claim 7, as discussed above, Endo teaches that the step of setting the adjusting value is provided independently of a contrast adjustment executed by driver for driving the display panel, and the adjusting value is set on the basis of a set value when the contrast adjustment is carried out (for that, Endo shows that the voltage designation signals are changed according to the temperatures and not according to the contrast adjustment) (col. 11, lines 36-62).

As to claim 8, the claim is an apparatus claim corresponding to method claims 1 and is analyzed as previously discussed with respect to claim 1.

As to claim 9, Endo teaches that first reference table (figure 5) is constituted to increase blue luminance in relative fashion when the color temperature is set to a high temperature side (col. 9, lines 22-35).

As to claim 10, the wave signal shown in figure 6 of Endo's device wherein the signals are inverted can fairly read on the citation of an inverter for adjusting a change of luminance on the liquid crystal display module on the basis of the offset quantity set by the first reference table (col. 10, lines 29-51).

As to claim 11, the table in figures 5 and 7 of Endo's device shows that the data is changed to unequal intervals corresponding to the desired luminance.

As to independent claim 12, the claim is substantially similar to the other independent claims rejected above and will be analyzed as previously discussed with respect to independent claims 1 and 5.

As to claim 13, as can be seen above, Endo (figures 5 and 7) shows that the hue value of the white color remains the same.

As to claims 14-15, Sato teaches that the adjusting means adjusts distribution of luminance among the R, G and B color signals by adding an offset quantity into originally characteristic of each of the entered R, G and B color signals, and then outputs a result thereof to the driver (col. 11, lines 7-57). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the teaching of Sato adding offset quantity to be incorporated to Endo's device so as to ensure the accuracy of the color values, and therefore, having a display with better color quality.

### ***Response to Arguments***

5. Applicant's arguments filed May 12, 2003 have been fully considered but they are not persuasive.

Applicants (last paragraph of page 7) argued that the present invention directed to a white point adjustment methodology and apparatus adjusting white color coordinate at any gray level of white precisely on CIE, and according to the invention, this can be achieved by changing the combination ratio of R/G/B sub-pixel light intensity (luminance) of 8 bits with higher bit accuracy (e.g., 10 bits), resulting in adjust gamma characteristics of R/G/B. Applicants then argued that such teaching has significantly distinguished effect from the Endo and Sato's references. Examiner respectfully submits that such teaching is not claimed in any of the independent claims.

Applicants (first paragraph of page 8) argued Endo's display system does not have sub-pixels wit color filter such as Red/Green/Blue, and that Endo describes that,

color will change from white to red, blue on color locus of birefringence type LC, and then green with increasing applied voltage, and thus, in Endo, color is not changed with the combination of sub-pixels of R/G/B. It is respectfully submitted by the Examiner that such teaching is not claimed.

Applicants (middle of page 8) argued that it is a key difference that Endo concerned with color changes due to ambient temperature, and not a color temperature adjustment as in the present invention. Examiner respectfully disagrees. There are no claimed limitations in any of the independent claims being directed to color temperature adjustment. Claim 1 of the present application recites "setting a white point by deciding an offset quantity of at least one color signal from a halftone white point for each color temperature.... setting an offset quantity of the color signal in a direction of converging a halftone white point for each color temperature set in the first step." Therefore, the color temperature is used only to decide the offset quantity of at least one color. In other word, the offset quantity of at least one color is set when the at least one color has a certain value (as indicated by the applicants in the middle of page 8 of the argument, the color temperature is the measurement of color when body is heated). Using the broadest reasonable interpretation of the claim, and by comparing the tables in figures 5 and 7 of Endo's device, we can see that at different temperatures, each of the colors (Red, Green and Blue) has different values, and the white point is set. Therefore, examiner believes that the teaching of Endo having different values for each color at different temperature fairly reads on the claimed limitations.



Applicants (first paragraph of page 9) concluded the argument of Endo's reference by stating, "Endo is entirely different from the present invention as claimed in claims 1, 5, 8 and 12. Endo simply cannot achieve such an effect in any color as in the present invention. That is, the methodology of the invention for adjusting a color temperature of a white point achieves precise adjustment; free adjustment of white coordinates at any gray level and also keeps smooth gray scale such as black to pure green..." As examiner indicated above, such limitation is not part of the claimed invention. There is no mention in the claim of any adjusting of color temperature, smoothing of the gray scale, or providing method to keep stable white color coordinates. As to the limitation of having color temperature, the Examiner has responded to such an argument above. Examiner may agree that Endo differ in some aspects from Applicants' invention as disclosed in the specification. However, such aspects are not part of the claimed invention.

Applicants (middle of page 9) argued Sato reference by stating, "There is no sub-pixels of R/G/B on the LCD either... Thus, the methodology described in Sato cannot achieve the gradation of a color, for example, black to white with smooth gray scale, black to green with smooth green scale, etc. as in the present invention. Examiner agrees with the Applicants that Sato does not teach the above stated limitations. However, such limitations are not part of the claimed invention (as claimed in independent claims 1, 5, 8 and 12). Rather these limitations are part of the Applicants' specification. Therefore, Examiner believes that the combination of Endo and Sato fairly reads on the invention as claimed.

***Conclusion***

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amr Awad whose telephone number is (703) 308-8485. The examiner can normally be reached on Monday-Friday, between 9:00AM to 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Saras can be reached on (703) 305-9720. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9314 for regular communications and (703)872-9314 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4750.

A handwritten signature in black ink, appearing to read "Amir A. Khan". The signature is fluid and cursive, with a large loop at the end.

A.A  
July 17, 2003